

1.11 Inverses

Classwork/Homework

Inverse Functions

#1-8 are required.

Find the inverse of the function.

Verify algebraically.

1. $f(x) = 2x + 3$

2. $f(x) = \frac{4x-5}{2}$

3. $f(x) = \frac{\sqrt[3]{x}}{3} + 2$

Use the chart below to find the following.

X	3	6	1	-2	5	0
F(x)	1	5	-2	6	0	3
G(x)	-2	3	5	0	6	1

Fill in the chart based on the chart above.

X	3	6	1	-2	5	0
$F^{-1}(x)$						
$G^{-1}(x)$						

Find the following.

4. $F^{-1}(5)$

5. $G^{-1}(0)$

6. $(G \circ F^{-1})(3)$

7. $(F^{-1} \circ G^{-1})(-2)$

8. Graph $f(x) = \frac{2}{3}x - 2$ and its inverse.

Choose 10 on the back 

Complete 10 problems in the areas you feel you need practice. You may complete more.

2. Is $g(x) = 4x + 24$ the inverse of $f(x) = \frac{1}{4}x + 6$? Justify your answer.

3. Is $h(x) = x^2 - 2$ the inverse of $g(x) = \sqrt{x + 2}$? Justify your answer.

4. Is $h(x) = x^2$ the inverse of $g(x) = \sqrt{x}$? Justify your answer.

The functions in Exercises 11–28 are all one-to-one. For each function,

- Find an equation for $f^{-1}(x)$, the inverse function.
- Verify that your equation is correct by showing $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$.

16. $f(x) = 3x - 1$

18. $f(x) = x^3 - 1$

20. $f(x) = (x - 1)^3$

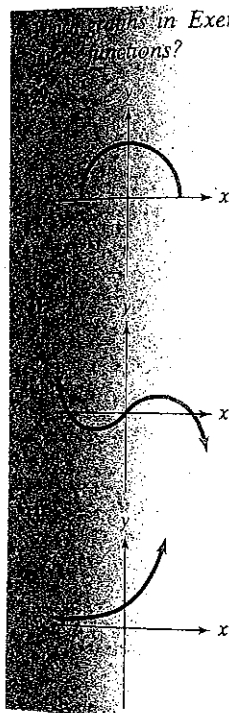
22. $f(x) = \frac{2}{x}$

24. $f(x) = \sqrt[3]{x}$

26. $f(x) = \frac{4}{x} + 9$

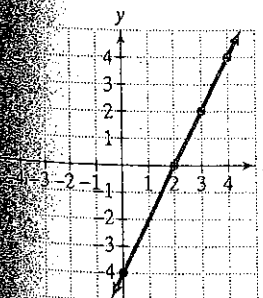
28. $f(x) = \frac{2x - 3}{x + 1}$

The graphs in Exercises 29–34 represent functions that have inverses.

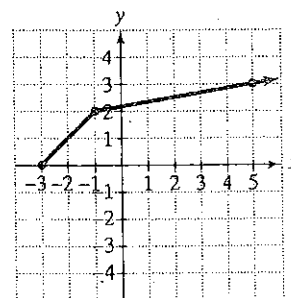


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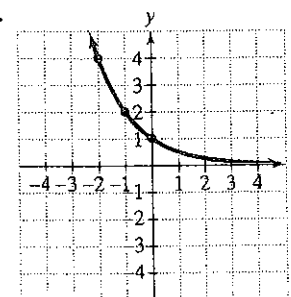
For Exercises 35–38, use the graph of f to draw the graph of its inverse function.



36.



38.



In Exercises 53–58, f and g are defined by the following tables to evaluate each composite function.

x	$f(x)$
-1	1
0	4
1	5
2	-1

x	$g(x)$
-1	0
1	1
4	2
10	-1

53. $f(g(1))$

54. $f(g(4))$

55. $(g \circ f)(-1)$

56. $(g \circ f)(0)$

57. $f^{-1}(g(10))$

58. $f^{-1}(g(1))$